What is claimed is:

1. A display method to collect and project optical flux from an array of at least one display pixels wherein:

each said display pixel can be controlled to produce optical flux of variable colors or values;

optical flux of said display pixels is collected into at least one of a plurality of light pipes;

each light pipe is associated with one at least one of a plurality of lens elements;

and, at the exit of each light pipe said at least one lens elements direct said optical flux to a desired field of view.

2. The method of claim 1 wherein said lens elements and said light pipes are integrated and are comprised of common optical medium:

3. The method of claim 2 wherein said lightpipe is achieved as a result of total internal reflection at a high -index: low -index interface along the sides of said lightpipe and wherein said low-index medium is typified by air.

4. The method of claim 2 wherein lens focal length to said elemental lens is expressed, at least approximately as:

$$F = R/(1-1/N),$$

where R is the lens surface radius of curvature and

where N is the refractive index of said common medium.

5. The method of claim 2 wherein said lens surface is aspheric and wherein said radius R is the effective radius of a limited region near apex of said aspheric lens.

6. The method of claim 2 wherein optical flux that enters the end of said lightpipe from a said display pixel passes through said high-index medium either by a direct path or by a reflection path to the refracting surface of said lens element whereupon said flux is dispersed over a solid angle.

7. Apparatus comprised of an array of one or more display elements Wherein each display element is comprised of at least one of a plurality of lightpipes and at least one of a plurality of lens elements whereby optical flux emanating from at least one of a plurality of pixels is collected and projected into a visual field for display.

8. The apparatus of claim 7 wherein image-wise data presented by said plurality of pixels is projected into a visual display field.

9. The apparatus of claim 7 wherein said lightpipes and lens elements comprise an integrated, monolithic unit.

10. The apparatus of claim 8 wherein said lightpipes and said lens elements are comprised of common optical material.

11. The apparatus of claim 8 wherein total internal reflection of flux at the lightpipe air-medium interface serves to collect at least a portion of flux emanating from pixels that would not directly intercept the refracting surface of an associated lens element whereby said portion is redirected to the refracting surface of said lens elements and thereby included in displayed flux.

12. The apparatus of claim 11 wherein two or more integrated lens/lightpipe units are joined to comprise a monolithic array and wherein the total internal reflecting surfaces of adjacent light pipes within said apparatus remain separated by regions of low-index medium.

13. The apparatus of claim 12 wherein at least a portion of optical flux that does not directly intercept the lens refracting surface and that also is not redirected by a surface of said light pipe but intercepts an adjoining lens element impacts said adjoining lens element at an angle whereby total internal reflection occurs whereby said flux is prevented from passing said adjoining lens element.

14. The apparatus of claim 7 wherein said lens elements are comprised of spherical segments and wherein said lightpipes are cylindrical having an axis approximately parallel to the axis of said lens.

15. The apparatus of claim 7 wherein said lens elements are comprised of cylindrical segments and wherein said lightpipes have an extent along the length of said cylindrical lenses whereby flux emanating from line of pixels is collected and projected for display.

16. The apparatus of claim 12 wherein lens surfaces of said monolithic array at least approximately completely tile-the-plane of the array.

17. The apparatus of claim 16 whereby flux emanating from a pixel of extent smaller than the lens surface at least approximately fills the surface of said lens.